

WE CLAIM:

1. An electrical power management architecture comprising:
 - 5 at least one intelligent electronic device ("IED") coupled with a portion of an electrical power system and further coupled with an internal network;
 - a firewall, the firewall operative to securely couple an external network with the internal network; and
 - 10 a network interface operative to couple the IED with the internal network and facilitate a communications, initiated by the IED, of first power management data through the firewall from the internal network to the external network.
 2. The electrical power management architecture of claim 1, wherein the firewall is operative to selectively restrict selected protocols communicated between the external network and the internal network.
 3. The electrical power management architecture of claim 1, wherein the network interface is further operative to facilitate receipt of the first power management data from the external network.
 4. The electrical power management architecture of claim 3 wherein the first power management data is received as at least one electronic mail message.
 - 20 5. The electrical power management architecture of claim 3, wherein the first power management data is received as at least one instant message.
 6. The electrical power management architecture of claim 3, wherein the IED is operative to process and implement a power management function in response to the first power management data.
 - 25 7. The electrical power management architecture of claim 6, wherein the first power management data comprises a power management command.

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- 8. The electrical power management architecture of claim 1, wherein the first power management data is communicated as at least one electronic mail message.
- 9. The electrical power management architecture of claim 1, wherein the first power management data is communicated as at least one instant message.
- 10. The electrical power management architecture of claim 1, wherein the external network further comprises an external mail server, the IED being further adapted to retrieve second power management data from the external mail server.
- 11. The electrical power management architecture of claim 10, wherein the IED retrieves the second power management data using a POP3 protocol.
- 12. The electrical power management architecture of claim 10, wherein the second power management data is retrieved as at least one electronic mail message.
- 13. The electrical power management architecture of claim 10, wherein the IED is capable of being configured to facilitate receipt of the power management data from the external mail server.
- 20 The electrical power management architecture of claim 1, wherein the internal network is further coupled with an internal mail server, the IED adapted to retrieve the first power management data from the internal mail server.
- 15. The electrical power management architecture of claim 1, wherein the IED is an electrical energy meter.
- 25 The electrical power management architecture of claim 1, wherein the network interface is further coupled with a security module, the security

module operative to prevent unauthorized access to the power management data.

17. The electrical power management architecture of claim 16, wherein the security module further comprises a second firewall.

5 18. The electrical power management architecture of claim 1, further comprising a security module coupled with the network interface, the security module further comprising an encryption application operative to encrypt the first power management data prior to communication.

19. The electrical power management architecture of claim 1, further comprising a security module coupled with the network interface, the security module operative to authenticate second power management data received from the external network.

20. The electrical power management architecture of claim 19, wherein the security module is operative to decrypt the second power management data received from the external network.

21. The electrical power management architecture of claim 1, the network interface using at least one application, wherein the application comprises a SMTP client.

20 22. The electrical power management architecture of claim 1, the network interface comprising at least one application, wherein the application comprises an instant messaging protocol.

23. The electrical power management architecture of claim 1, the network interface comprising at least one application, wherein the application comprises a hypertext transport protocol (“HTTP”) tunneling application.

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- 24. The electrical power management architecture of claim 1, the network interface comprising at least one application, wherein the application communicates the power management data on a scheduled basis.
- 25. The electrical power management architecture of claim 1, wherein the IED retrieves a timestamp from a time server, the timestamp operative to timesync the IED.
- 26. The electrical power management architecture of claim 25, the network interface comprising at least one application operative to communicate the power management data on a scheduled basis, the scheduled basis being authenticated from the timestamp.
- 27. The electrical power management architecture of claim 1, the network interface comprising at least one application operative to communicate the power management data on an event driven basis.
- 28. The electrical power management architecture of claim 1, wherein the first power management data comprises a power management command.
- 29. The electrical power management architecture of claim 1, wherein the first power management data is in extensible markup language ("XML") format.
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- 30. The electrical power management architecture of claim 1, wherein the first power management data is in comma-separated value ("CSV") format.
- 31. The electrical power management architecture of claim 1, wherein the electrical power system comprises a load.
- 32. The electrical power management architecture of claim 1, wherein the electrical power system comprises a generator.
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- 33. The electrical power management architecture of claim 1, wherein the internal network comprises an Ethernet network.

34. An electrical power management architecture comprising:
at least one intelligent electronic device ("IED") coupled with a portion of an electrical power system and further coupled with an internal network;
5 a firewall, the firewall operative to couple the internal network and an external network;
a communications interface operative to facilitate communications of the IED with a transport box, the transport box having a network interface and operative to facilitate communication of power management data through the firewall, and further wherein the network interface is operative to initiate communications of the power management data from the internal network to the external network.

10 35. The electrical power management architecture of claim 34, wherein the firewall is adapted to restrict communications from the internal network to the external network.

15 36. The electrical power management architecture of claim 34, wherein the firewall is operative to restrict selected protocols between the external network and the internal network.

20 37. The electrical power management architecture of claim 34, wherein a security module is coupled with the network interface, the security module operative to prevent unauthorized access to the power management data.

38. The electrical power management architecture of claim 34, wherein the network interface is further operative to facilitate receipt of at least one power management command from the external network.

25 39. The electrical power management architecture of claim 34, wherein the IED transmits an electronic pulse to the transport box, the transport box converting the electronic pulse into power management data.

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40. The electrical power management architecture of claim 39, wherein the transport box converts the power management data to XML format.

41. The electrical power management architecture of claim 34, wherein the communications comprises at least one electronic mail message.

42. The electrical power management architecture of claim 34, wherein the communications comprises at least one instant message.

43. The electrical power management architecture of claim 34, wherein the network interface is further coupled to a security module, the security module further comprises an encryption application operative to encrypt the power management data prior to transmission of the power management data.

44. The electrical power management architecture of claim 43, wherein the transport box is further operative to receive an external electronic mail message from the external network, the IED further operative to communicate with the transport box and retrieve the external electronic mail message from the transport box.

45. The electrical power management architecture of claim 34, wherein a second network interface is operative to couple the IED with the internal network.

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46. The electrical power management architecture of claim 34, wherein the communications comprises HTTP tunneling.

47. The electrical power management architecture of claim 34, wherein the IED is an energy meter.

48. The electrical power management architecture of claim 34, wherein the IED is an electro-mechanical watt-hour meter.

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- 49. The electrical power management architecture of claim 34, wherein the IED is a Remote Terminal Unit ("RTU").
- 50. The electrical power management architecture of claim 34, wherein the firewall comprises a proxy server.
- 51. An electrical power management architecture comprising:
 - at least one intelligent electronic device ("IED") coupled with a portion of an electrical power system and further coupled with an internal network;
 - a firewall operative to couple an external network with the internal network;
 - a mail server coupled with the internal network and operative to facilitate communications of electronic mail messages between the external network and the internal network;
 - a network interface operative to couple the IED with the internal network and further operative to communicate with the mail server, the mail server being operative to communicate through the firewall, and further wherein the mail server is operative to initiate communications of at least one of the electronic mail messages from the internal network to the external network.
- 52. The electrical power management architecture of claim 51, wherein the mail server uses a POP3 protocol.
- 53. An electrical power management architecture for managing an electrical power distribution system comprising:
 - a network;
 - at least one intelligent electronic device ("IED") coupled with a portion of said electrical power distribution system and further coupled with said network, each of said at least one IED operative to implement a power management function in conjunction with said portion of said

electrical power distribution system, said power management function operative to respond to at least one power management command and generate power management data, each of said at least one IED comprising:

5 a first network interface operative to couple said at least one IED with said network and facilitate transmission of said power management data and receipt of said at least one power management command over said network;

10 a security module coupled with said first network interface and operative to prevent unauthorized access to said power management data; and

15 a protocol stack, said protocol stack including an application layer comprising at least one application operative to punch through a firewall;

20 said architecture further comprising:

25 a power management application coupled with said network and operative to receive and process said power management data from said at least one IED and generate said at least one power management command to said at least one IED to implement said power management function.

54. A method of communicating power management data in an electrical power management architecture between an internal network and an external network, the internal network being coupled with the external network by a firewall, the method comprising:

25 (a) monitoring a portion of an electrical power distribution system with at least one intelligent electronic device (“IED”), the at least one IED further being coupled with the internal network;

30 (b) generating power management data by the at least one IED corresponding to said monitoring;

(c) initiating a first communications of the power management data to a receiver, the receiver being coupled with the external network;

and

(d) facilitating the initiated first communications through the firewall to the external network for delivery to the receiver.

55. The method of Claim 54, further comprising:

(e) receiving a second communications by the at least one IED from the external network through the firewall.

56. The method of Claim 54, wherein the first communications comprises at least one electronic mail message.

57. The method of Claim 54, further comprising:

(e) allowing communications using standard protocols between the internal and external networks by the firewall.

58. The method of Claim 54, further comprising:

(e) restricting communications using standard protocols between the internal and external networks by the firewall.

59. A method of communicating power management data in an electrical power management architecture between an internal network and an external network, the internal network being coupled with the external network by a firewall through which communications between the internal network and external network must travel, the method comprising:

20 (a) monitoring a portion of an electrical power distribution system with at least one intelligent electronic device (“IED”), the at least one IED further being coupled with the internal network;

(b) generating power management data by the at least one IED corresponding to the monitoring;

25 (c) initiating a first communications of the power management data by the at least one IED to a receiver, the receiver being coupled with the external network;

(d) configuring the internal network to allow the first

communications to be transmitted to the external network via the firewall;
and

(e) transmitting the initiated first communications through the firewall to the external network for delivery to the receiver.

5 60. The method of Claim 59, wherein (d) further includes configuring an electronic mail server coupled with the internal network to allow the at least one IED to send electronic mail to the external network using the electronic mail server, the electronic mail server being operative to transmit electronic mail messages from the internal network to the external network via the firewall.

10 61. The method of Claim 59, wherein (d) further includes configuring the firewall to allow the at least one IED to communicate with a communications server coupled with the external network.

15 62. The method of Claim 61, wherein the communications server comprises an electronic mail server.

63. The method of Claim 61, wherein the communications server comprises an XML server.

20 64. The method of Claim 59, wherein the first communications is formatted in a computer readable format.

65. The method of Claim 64, wherein the receiver comprises a data processing system operative to receive the first communications and automatically process the power management data.

66. The method of Claim 59, wherein (c) is performed in response to an occurrence of an event monitored on the power distribution system.

25 67. The method of Claim 59, wherein (c) is performed according to a pre-defined schedule maintained by the at least one IED.